

Tact switches



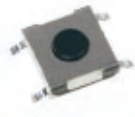
Section C

D162	<i>New!</i>	SMT	C 3
PHAP33		SMT	C 4
PHAP33		Through-hole	C 13

Selection guide

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Tact switches



Series	D162	PHAP3390 PHAP3391	PHAP3380	PHAP3371 PHAP3372 PHAP3373 PHAP3374	PHAP3378	PHAP3361	PHAP3355	PHAP3366 PHAP3365
Page	C 3	C-5	C-6	C-7	C-9	C-10	C-10	C-11
Type (SMT/Through hole)	SMT	SMT	SMT	SMT	SMT	SMT	SMT	SMT
Contact	N.O.	N.O.	N.O.	N.O.	N.C.	N.O.	N.O.	N.O.
Case format	6x6mm	4,2x4,2mm	6x6mm	6,2x6,2mm	7,6x7,6mm	6x3,5mm	6x3,5mm	6,1x3,7mm
Button height from PCB	3,96mm	1,5mm	1,6mm	2,6 to 3,4mm	4,3mm	4,3 and 5mm	1,8mm	2,5mm
Grounding tab	Yes	-	Yes	Yes	-	-	Yes	-
Packaging	T/R	T/R - Bags	T/R - Bags	T/R - Bags	T/R	T/R - Bags	T/R	T/R
Maximum ratings	50mA 12VDC	50mA 12VDC	50mA 12VDC	50mA 12VDC	50mA 12VDC	50mA 12VDC	50mA 12VDC	50mA 12VDC
Mounting options								
SMT	X	X	X	X	X	X		X
Right angle SMT							X	



Series	PHAP3368	PHAP3305	PHAP3362 PHAP3363	PHAP3301 to PHAP3308	PHAP3307	PHAP3350 PHAP3351 PHAP3352	PHAP3353	PHAP3320 PHAP3321
Page	C-12	C-12	C-13	C-14	C-15	C-16	C-16	C-17
Type (SMT/Through hole)	SMT	SMT	Through hole	Through hole	Through hole	Through hole	Through hole	Through hole
Contact	N.O.	N.O.	N.O.	N.O.	N.O.	N.O.	N.O.	N.O.
Case format	6x6mm	6x6mm	6x3,5mm	6x6mm	6,1x6,1mm	7,2x7,2mm	10x10mm	12x12mm
Button height from PCB	4,3 to 13mm	5,9mm	4,3 and 5mm	4,3 to 13mm	4,3 to 7mm	4,35 to 13mm	13mm	4,3 to 12mm
Grounding tab	-	Yes	-	Yes	-	Yes	-	Yes
Caps	Yes	-	-	Yes	-	-	-	Yes
Packaging	T/R - Bags	T/R	Bags	Bags	Tape	Bags	Bags	Bags
Process sealed						Yes	Yes	
Maximum ratings	50mA 12VDC	50mA 12VDC	50mA 12VDC	50mA 12VDC	50mA 12VDC	50mA 12VDC	50mA 12VDC	50mA 12VDC
Mounting options								
SMT	X							
Right angle SMT		X						
Through hole			X	X	X	X	X	X
Right angle Through hole			X	X		X		



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New!

SMT tact switches

6 x 6 mm case

- ❑ Excellent coplanarity
- ❑ Right angle for pick and place

ELECTRICAL SPECIFICATIONS

- Normally open (NO)
- Current/voltage rating : 50mA 12VDC max.
- Contact resistance : 100 mΩ max.
- Insulation resistance (at 100VDC) : 1.000 MΩ min.
- Dielectric strength : 250 Vrms
- Electrical life : 40.000 cycles

MATERIALS

- Case : high temperature 4/6 nylon
- Actuator : high temperature 4/6 nylon
- Cover : steel, tin plated
- Contacts : stainless steel or copper alloy, min. 0,2 micron gold plated over nickel barrier
- Terminals : copper alloy, min. 0,2 micron gold plated over nickel barrier

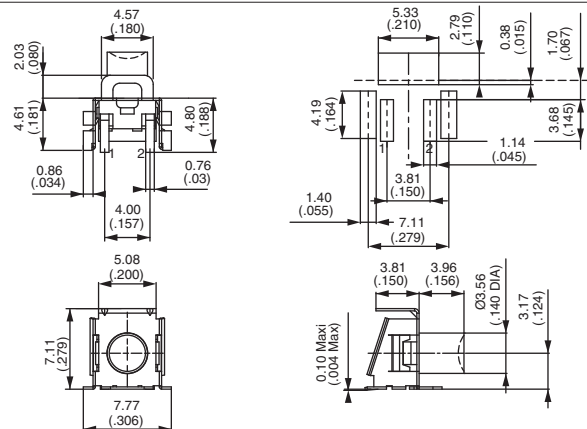
GENERAL SPECIFICATIONS

- Operating force : 1,6N ± 0,3N
- Travel : 0,2 mm ± 0,1 mm
- Shocks : 50 g according to IEC 512-4
- Moisture : 21 days according to IEC 512-6
- Temperature range : -40°C to +90°C
- Tape and reel packaging
- SMT soldering

Right angle mounting

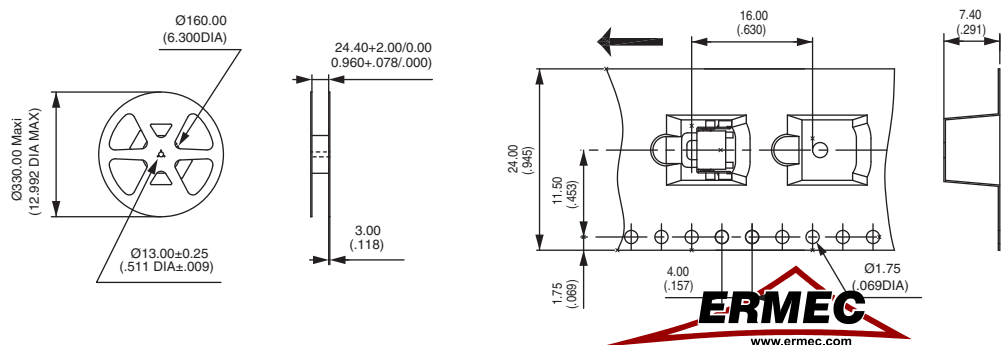


Model No
D162-02



PACKAGING

Quantity per reel : 600 pieces



Dimensions : first dimensions are in mm while inches are shown as bracketted numbers.

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Tact switches

Distinctive features and specifications

- Wide range of case formats
- SMT and through-hole models
- Normally closed models available

Models	PHAP3390 PHAP3391	PHAP3381 PHAP3382 PHAP3383 PHAP3384	PHAP3371 PHAP3372 PHAP3373 PHAP3374 PHAP3378	PHAP3355 PHAP3361 PHAP3362 PHAP3363 PHAP3365 PHAP3366	PHAP3301 PHAP3302 PHAP3303 PHAP3305 PHAP3306 PHAP3307 PHAP3308 PHAP3368	PHAP3350 PHAP3351 PHAP3352 PHAP3353	PHAP3320 PHAP3321
Current/voltage rating	50mA 12VDC						
Contact resistance	100 mΩ max.						
Insulation resistance	100 MΩ min.						
Dielectric strength	250 VAC min. (1 minute)						
Electrical life (cycles)	70.000	70.000	75.000	30.000	100.000	100.000	100.000
Operating force	2,6N ± 0,5N	1,6N ± 0,5N	1,6N +0,5/-0,3N	1,8N ± 0,5N	1,6N ± 0,5N	2N ± 0,3N	1,6N ± 0,5N
Travel	0,20 mm	0,25 mm	0,25 mm	0,25 mm	0,25 mm	0,50 mm	0,30 mm
Operating temperature	-20°C to +70°C						
Storage temperature	-30°C to +80°C						
Vibrations	10-500 Hz / 10 g						
IR reflow soldering	240°C for 20 seconds max.				-		
Wave soldering	255°C for 5 seconds max.						
Manual soldering	300°C for 3 seconds max.						

Dimensions : First dimensions are in mm while inches are shown as bracketted numbers.



Packaging unit : 1.000 pieces and multiples, except for tape and reel packaging (see following pages).



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PHAP333 ERMEC series

SMT tact switches

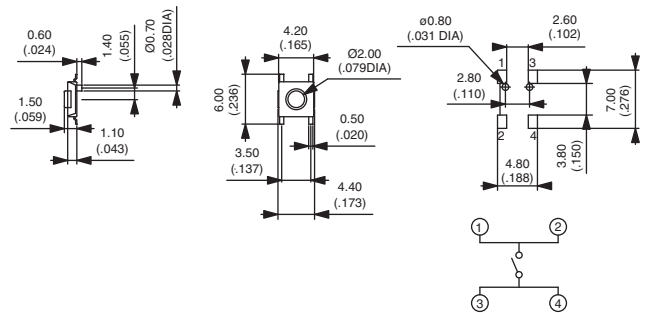
Microminiature and ultra-low profile - 4,2 x 4,2 mm case

- Ultra-compact size for board space saving : 4,2 x 4,2 mm case, 1,5 mm button height from PCB
- Reflow solderable
- With or without positioning pins
- For tape and reel packaging, add "R" at the end of model number.

With positioning pins



Model number
PHAP3390

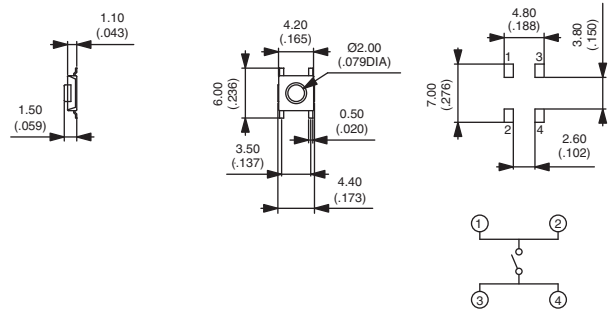


Operating force : 2,6N ± 0,5N - Travel : 0,20 mm

Without positioning pins



Model number
PHAP3391



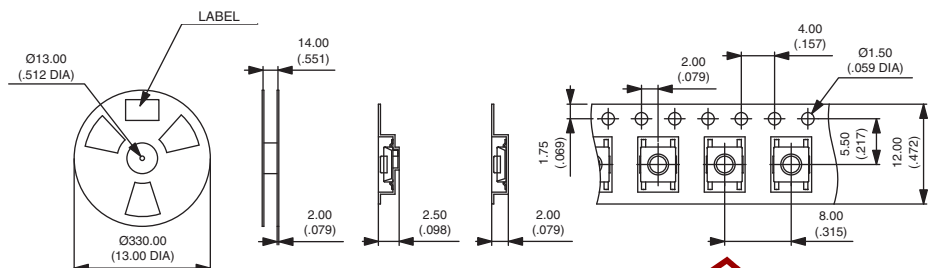
Operating force : 2,6N ± 0,5N - Travel : 0,20 mm

PACKAGING

To order a product with tape and reel packaging, add "R" at the end of its model number.

Example : PHAP3390R.

Quantity per reel : 3.400 pieces



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SMT tact switches

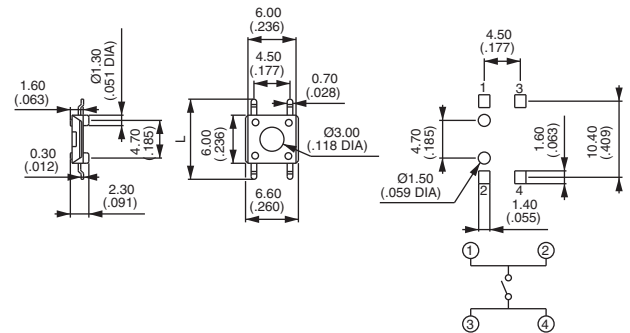
Ultra-low profile - 6 x 6 mm case

- Ultra-compact size for board space saving : 6 x 6 mm case, 1,6 mm button height from PCB
- Reflow solderable
- Types for iron soldering (L = 10 mm)
- With positioning pins
- With or without grounding tab for protection against electrostatic discharges
- For tape and reel packaging, add "R" at the end of model number.

Without grounding tab



Model No	Dim. «L»
PHAP3381	8 mm
PHAP3382	10 mm

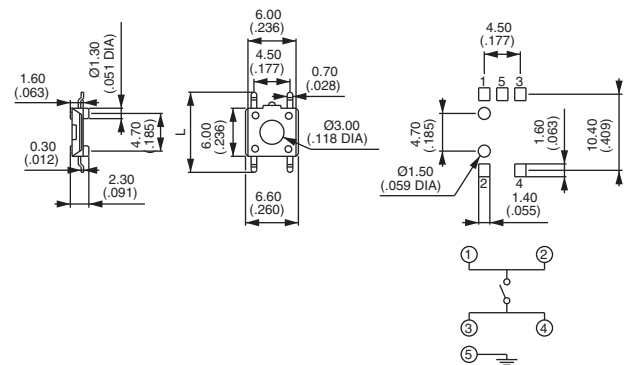


Operating force : 1,6N ± 0,5N - Travel : 0,25 mm

With grounding tab



Model No	Dim. «L»
PHAP3383	8 mm
PHAP3384	10 mm



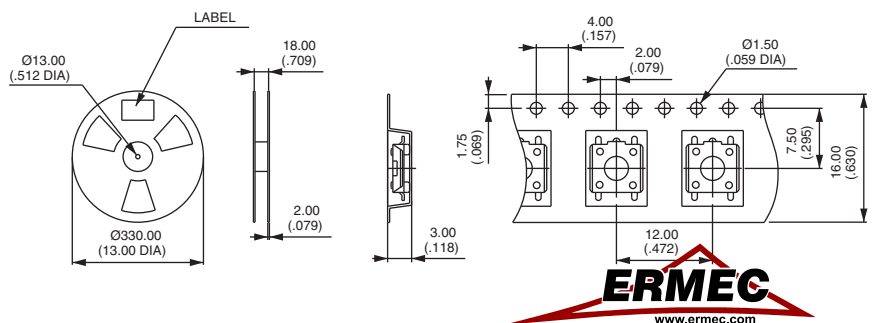
Operating force : 1,6N ± 0,5N - Travel : 0,25 mm

PACKAGING

To order a product with tape and reel packaging, add "R" at the end of its model number.

Example : PHAP3383R.

Quantity per reel : 2.200 pieces



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PHAP33 series

SMT tact switches

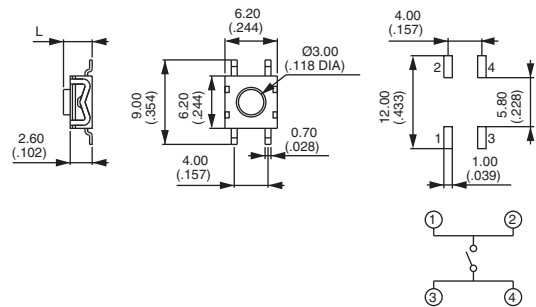
Low profile - 6,2 x 6,2 mm case

- Ultra-compact size for board space saving : 6,2 x 6,2 mm case, 2,6 to 3,4 mm button height from PCB
- Reflow solderable
- With or without grounding tab for protection against electrostatic discharges
- Models with external terminals type G or internal terminals type J
- For tape and reel packaging, add "R" at the end of model number.

External terminals type G (gullwing)



Model No	Dim. «L»
PHAP3371	2,6 mm
PHAP3371A	3,4 mm

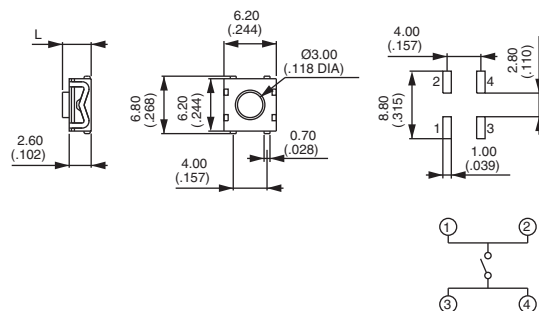


Operating force : 1,6N + 0,5N/-0,3N - Travel : 0,25 mm

Internal terminals type J - tape and reel packaging



Model No	Dim. «L»
PHAP3372R	2,6 mm
PHAP3372AR	3,4 mm



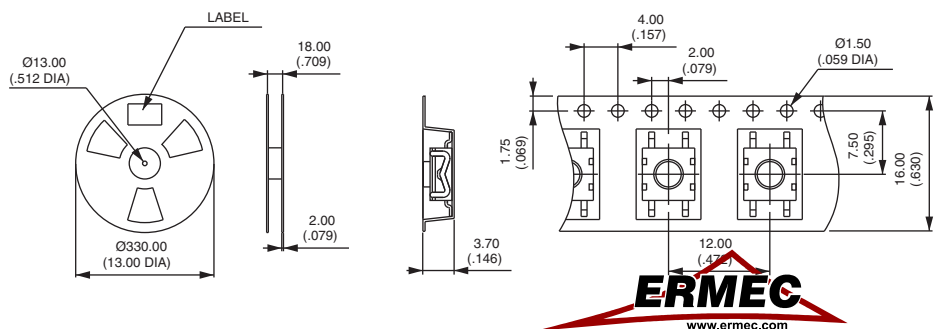
Operating force : 1,6N + 0,5N/-0,3N - Travel : 0,25 mm

PACKAGING

To order a product with tape and reel packaging, add "R" at the end of its model number.

Example : PHAP3371R.

Quantity per reel : 1.600 pieces



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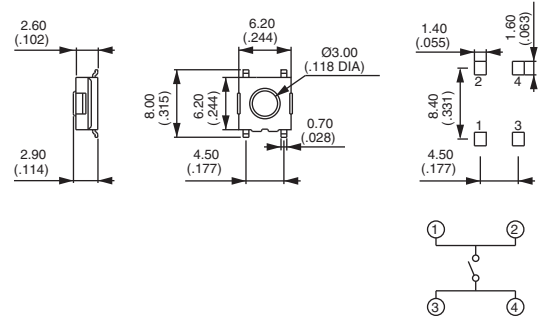
SMT tact switches

Low profile - 6,2 x 6,2 mm case

Button height from PCB : 2,9 mm



Model No
PHAP3373

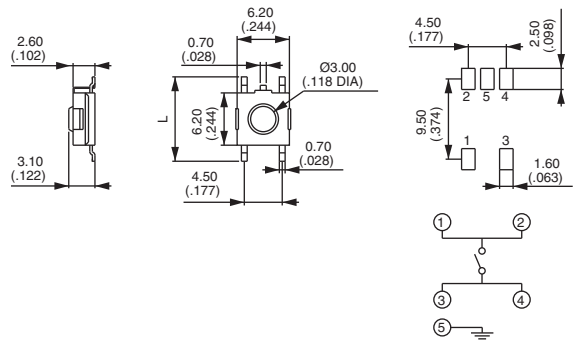


Operating force : 1,6N + 0,5N/-0,3N - Travel : 0,25 mm

Button height from PCB : 3,1 mm - with grounding tab



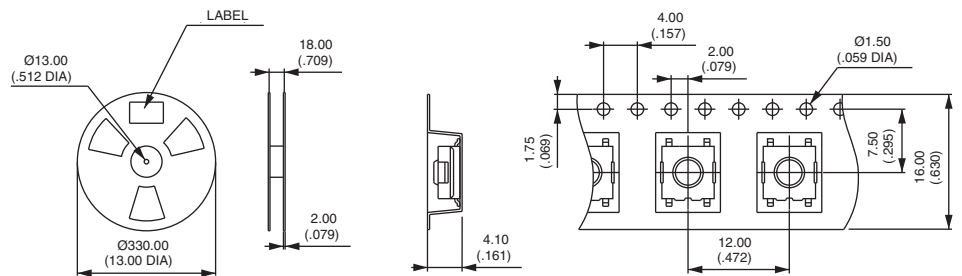
Model No	Dim. «L»
PHAP3374	8 mm



Operating force : 1,6N + 0,5N/-0,3N - Travel : 0,25 mm

PACKAGING

To order a product with tape and reel packaging, add "R" at the end of its model number.
 Example : PHAP3373R.
 Quantity per reel : 1.700 pieces



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PHAP33 series

SMT tact switches

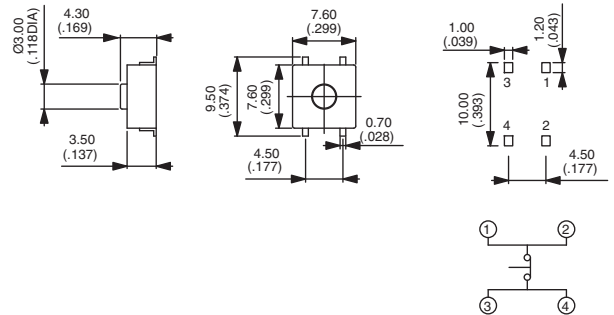
Normally closed - 7,6 x 7,6 mm case

- Compact size for board space saving : 7,6 x 7,6 mm case, 4,3 mm button height from PCB
- Reflow solderable
- Standard PCB layout

Normally closed



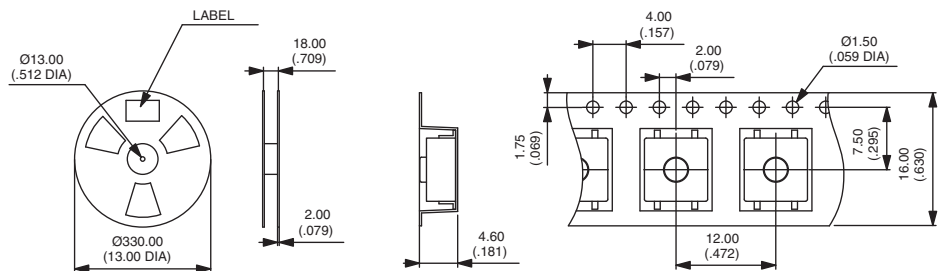
Model No
PHAP3378R



Operating force : 1,6N ± 0,5N - Travel : 0,25 mm

PACKAGING

Quantity per reel : 1.300 pieces



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PHAP33 series

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SMT tact switches

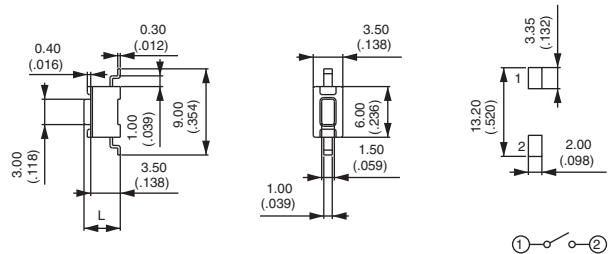
Microminiature - 6 x 3,5 mm case

- Ultra-compact size for board space saving : 6 x 3,5 mm case, 4,3 or 5 mm button height from PCB
- Right angle version available

Standard mounting



Model No	Dim. «L»
PHAP3361	4,3 mm
PHAP3361A	5,0 mm

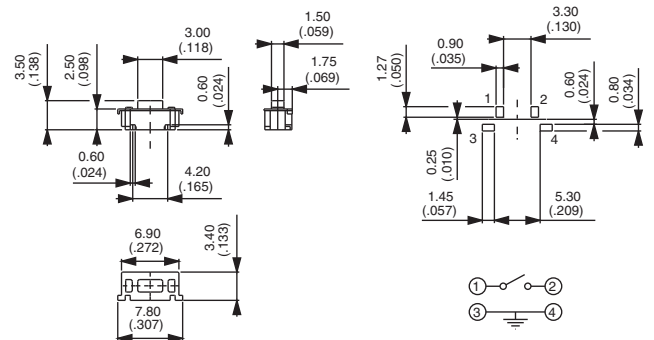


For tape and reel packaging, add "R" at the end of model number.
Operating force : 1,8N ± 0,5N - Travel : 0,25 mm

Right angle mounting



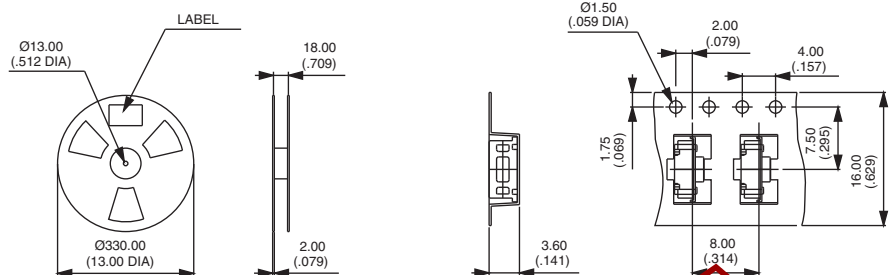
Model No
PHAP3355R



Operating force : 1,8N ± 0,5N - Travel : 0,25 mm

PACKAGING

Quantity per reel :
PHAP3361R : 1.800 pieces
PHAP3361AR : 1.800 pieces
PHAP3355R : 2.000 pieces



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PHAP33 series

SMT tact switches

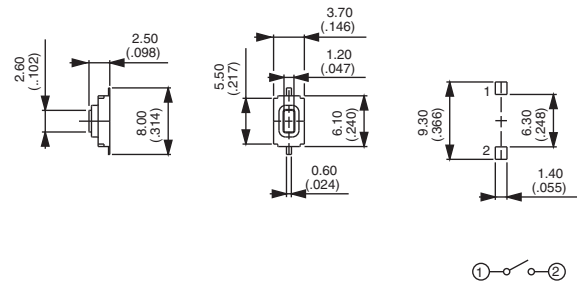
Microminiature - Low profile - 6,1 x 3,7 mm case

- Ultra-compact size for board space saving : 6,1 x 3,7 mm case, 2,5 mm button height from PCB
- Available with flat or bent terminals

Flat terminals



Model No
PHAP3365R

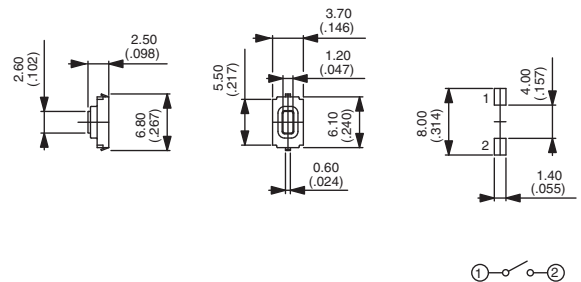


Operating force : 1,8N ± 0,5N - Travel : 0,25 mm

Bent terminals



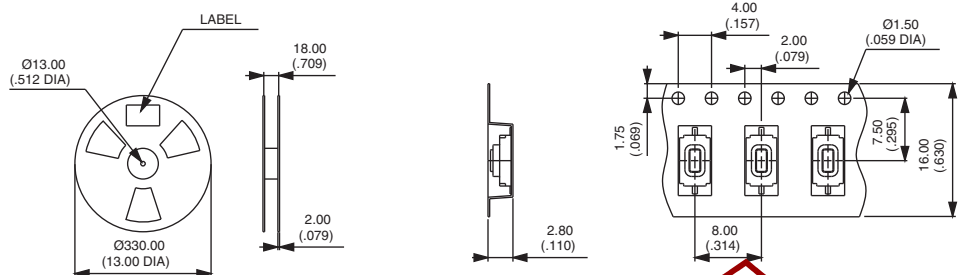
Model No
PHAP3366R



Operating force : 1,8N ± 0,5N - Travel : 0,25 mm

PACKAGING

Quantity per reel : 3.000 pieces



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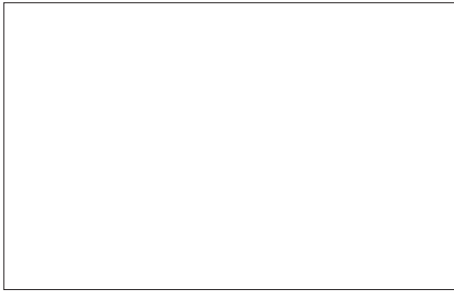
PHAP33 series

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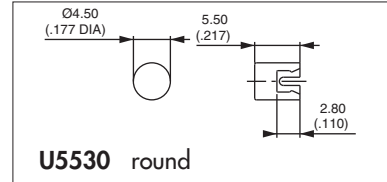
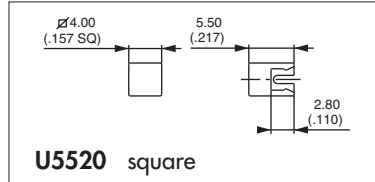
SMT tact switches

6 x 6 mm case

- 4,3 to 13 mm button height from PCB
- Excellent tactile feedback (snap dome)
- Standard PCB layout
- Caps for model with square actuator

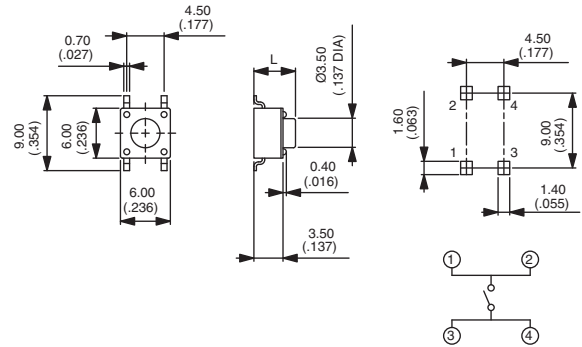


Cap colours : 1 : blue - 2 : black - 3 : green
5 : yellow - 6 : red - 7 : ivory



Round actuator

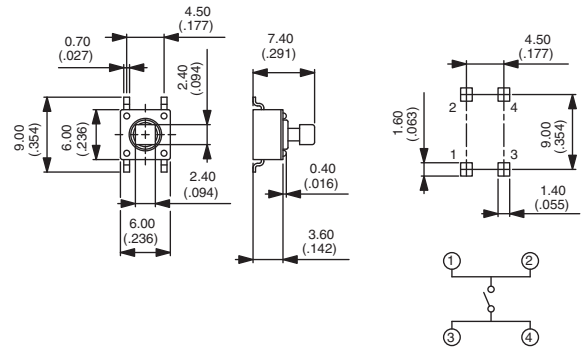
Model No	Dim. «L»	Actuator colour
PHAP3368	4,3 mm	black/white
PHAP3368A	5,0 mm	black/white
PHAP3368B	9,5 mm	black
PHAP3368C	8,0 mm	white
PHAP3368D	13,0 mm	black
PHAP3368E	7,3 mm	ivory
PHAP3368F	8,5 mm	grey



Operating force : 1,6N ± 0,5N - Travel : 0,25 mm

Square actuator

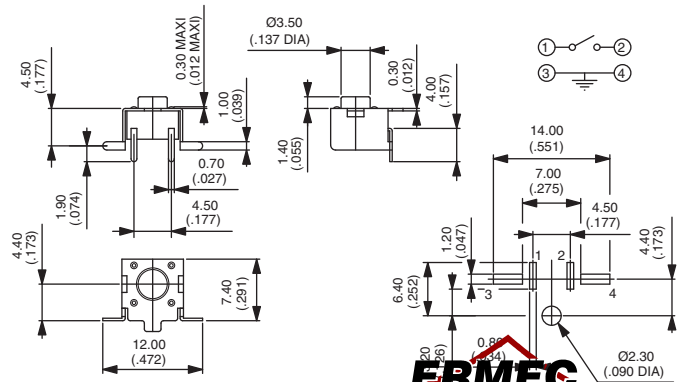
Model No
PHAP3368T



Operating force : 1,6N ± 0,5N - Travel : 0,25 mm

Edge of PCB mounting

Model No
PHAP3305ASR



Operating force : 1,6N ± 0,5N - Travel : 0,25 mm
Quantity per reel : 650 pieces



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PHAP33 series www.ermec.com

Through-hole tact switches

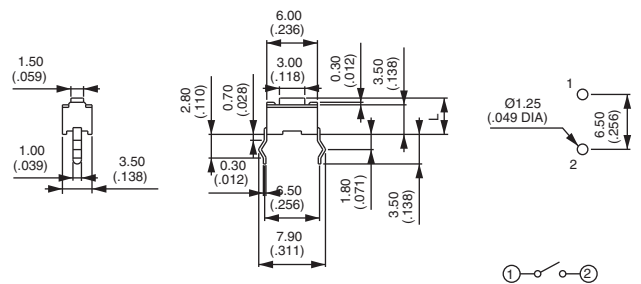
Microminiature - 6 x 3,5 mm case

- Ultra-compact size for board space saving : 6 x 3,5 mm case, 4,3 or 5 mm button height from PCB
- Crimped terminals for direct mounting onto PCB
- Moulded-in terminals for wave soldering

Standard mounting



Model No	Dim. «L»
PHAP3362	4,3 mm
PHAP3362A	5,0 mm

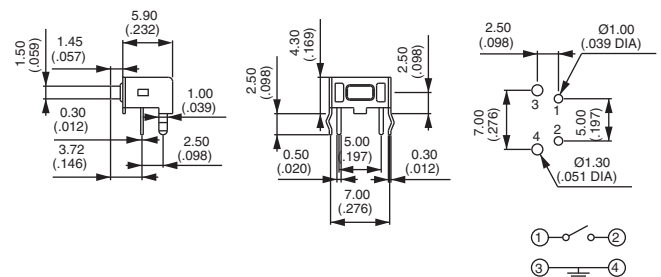


Operating force : 1,8N ± 0,5N - Travel : 0,25 mm

Right angle mounting



Model No
PHAP3363



Operating force : 1,8N ± 0,5N - Travel : 0,25 mm



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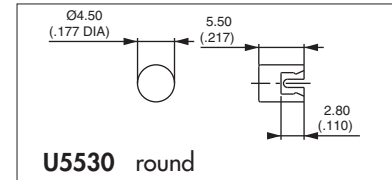
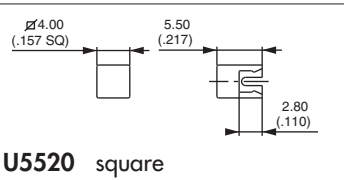
PHAP33 series

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Through-hole tact switches

6 x 6 mm case

- 4,3 to 13 mm button height from PCB
- Excellent tactile feedback (snap dome)
- Crimped terminals for direct mounting onto PCB
- With or without grounding tab for protection ag. electrostatic discharges
- Moulded-in terminals for wave soldering
- Caps for model with square actuator (L = 2,4 mm) :

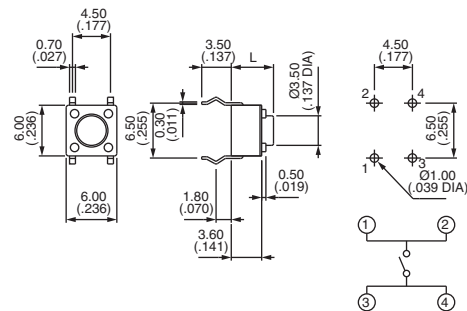


Cap colours : 1 : blue - 2 : black - 3 : green -
5 : yellow - 6 : red - 7 : ivory

Straight terminals



Model No	Dim. «L»	Actuator colour
PHAP3301	4,3 mm	black
PHAP3301A	5,0 mm	black
PHAP3301B	9,5 mm	black
PHAP3301C	8,0 mm	white
PHAP3301D	13,0 mm	black
PHAP3301E	7,3 mm	ivory
PHAP3301F	8,5 mm	grey

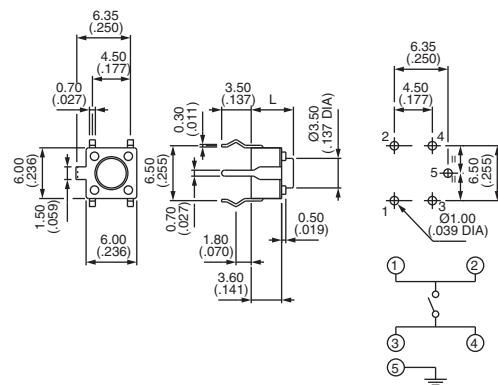


Operating force : 1,6N ± 0,5N - Travel : 0,25 mm

Straight terminals - with grounding tab



Model No	Dim. «L»	Actuator colour
PHAP3302	4,3 mm	black
PHAP3302A	5,0 mm	black
PHAP3302B	9,5 mm	black
PHAP3302C	8,0 mm	white
PHAP3302D	13,0 mm	black
PHAP3302E	7,3 mm	ivory

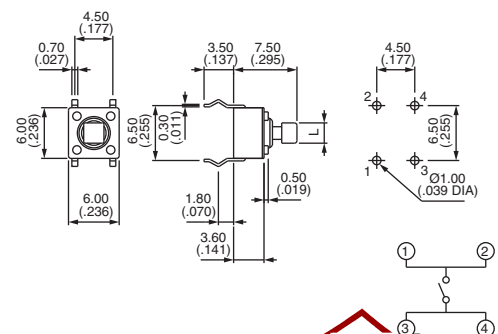


Operating force : 1,6N ± 0,5N - Travel : 0,25 mm

Straight terminals - square actuator



Model No	Dim. «L»	Actuator colour
PHAP3303	2,4mm	blue
PHAP3303A	2,8 mm	black



Operating force : 1,6N ± 0,5N - Travel : 0,25 mm



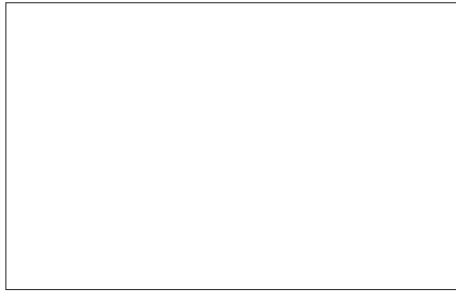
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PHAP33 series

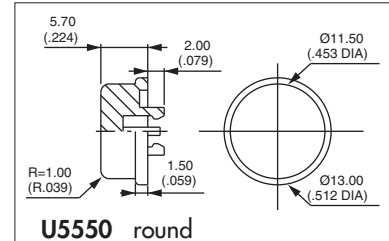
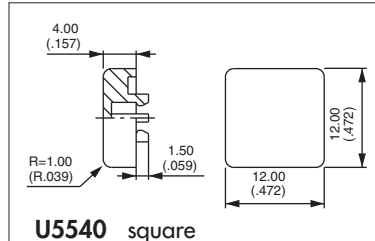
Through-hole tact switches

12 x 12 mm case

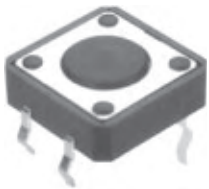
- 4,3 to 12 mm button height from PCB
- Excellent tactile feedback (snap-dome)
- Crimped terminals for direct mounting onto PCB
- Moulded-in terminals for wave soldering
- Caps for model PHAP3321 :



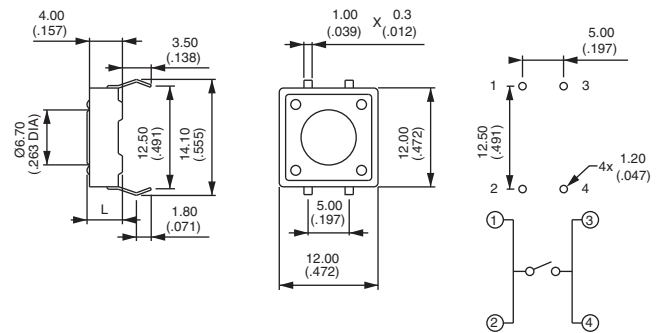
Cap colours : 1 : blue - 2 : black - 3 : green
5 : yellow - 6 : red - 7 : ivory



Straight terminals - short actuator



Model No	Dim. «L»
PHAP3320	4,3 mm
PHAP3320A	7,5 mm

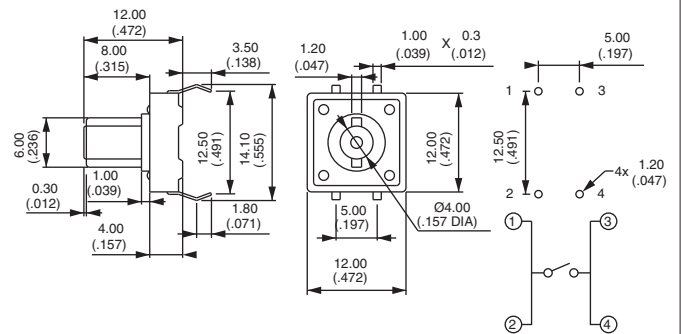


Operating force : 1,6N ± 0,5N - Travel : 0,30 mm

Straight terminals - long keyed actuator



Model No
PHAP3320B

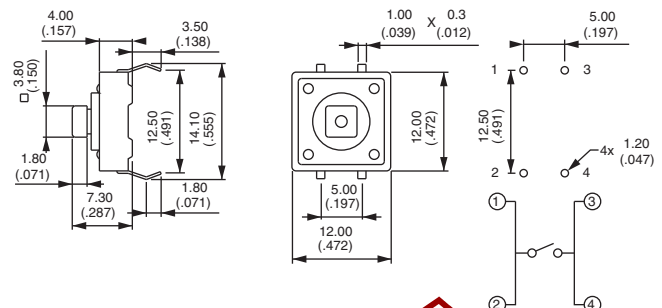


Operating force : 1,6N ± 0,5N - Travel : 0,30 mm

Straight terminals - square actuator



Model No
PHAP3321



Operating force : 1,6N ± 0,5N - Travel : 0,30 mm



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